

Septoria Leaf Spot and Canker

Premature defoliation in windbreaks and other plantings

Pathogen—Septoria leaf spot is caused by fungi in the genus *Mycosphaerella* (*M. populorum* and *M. populiicola*). The asexual stages are *Septoria musiva* and *S. populiicola*, respectively.

Hosts—Septoria diseases are most common in planted windbreaks in the Great Plains. All North American poplars and aspens are susceptible to leaf spots (fig. 1) caused by *Mycosphaerella populorum*, but the fungus also causes cankers on cottonwood, hybrid poplars, and introduced poplars (fig. 2). Hybrid poplars and some introduced poplars are most susceptible.

Hosts for *M. populiicola* include black and eastern cottonwoods, balsam poplar, and narrowleaf cottonwood.

Signs and Symptoms—The appearance of foliar lesions varies within and among hosts. Typically, lesions appear as small, circular to angular, white, grayish, tan, brown, or purplish spots with a dark border. Spots may coalesce to form blotches but remain small on more resistant species. Dark specks (pycnidia) are scattered in older lesions. Pink tendrils of conidia may exude from pycnidia during moist weather. Microscopic examination of conidia is necessary to positively identify the species.

Cankers only occur on trees with leaf spots, and their severity is proportional to leaf spot severity. Cankers usually occur on the lower portions of the tree within 5 ft (1.5 m) of the ground and originate at wounds, lenticels, stipules, or leaf bases. Cankered bark initially darkens but becomes tan in the center. Pycnidia may be visible on young cankers but are rare on older cankers.

Disease Cycle—The pathogens overwinter on fallen infected leaves and in infected branches and stems. Primary infections occur in the spring by means of ascospores produced in fruiting bodies (pseudothecia) on fallen leaves or in infected branches and stems. Lesions develop about 1-2 weeks after infection, and asexual fruiting bodies (pycnidia) are produced in about 3-4 weeks. Secondary infections may occur throughout the summer during warm, moist conditions when conidia are released from fruiting bodies (pycnidia) and are spread by wind or rain splash to infect new leaves and stems.

Impact—*Mycosphaerella populiicola* is less virulent than *M. populorum*. The diseases cause little to no damage in natural stands, but *M. populorum* can cause severe damage in plantings and windbreaks. Premature defoliation may occur in more susceptible species, and cankers can girdle stems. *Cytospora chrysosperma* and other canker fungi may invade the edges of Septoria cankers.

Management—Control strategies for Septoria diseases include: planting only resistant or tolerant clones; increasing spacing between trees to increase air circulation and reduce humidity; raking and destroying infected overwintering leaves and stems; and applying fungicides to protect propagation beds and landscape trees



Figure 1. Close-up of an irregularly-shaped Septoria leaf spot lesion with fruiting bodies (pycnidia) in the center. Photo: Michael Kangas, NDSU-North Dakota Forest Service, Bugwood.org.

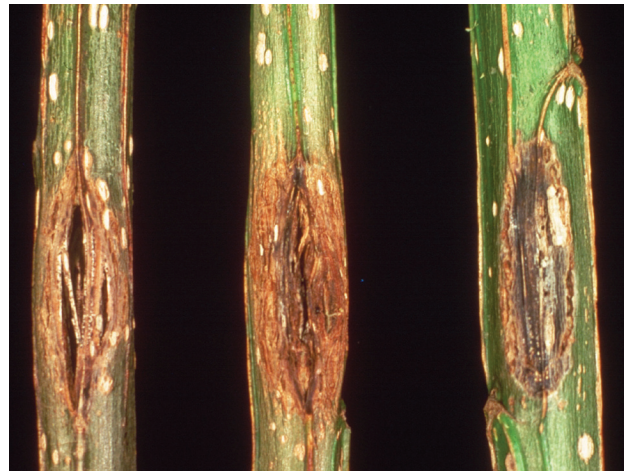


Figure 2. Septoria cankers on young poplar branches. Photo: T.H. Filer, Jr.; USDA Forest Service; Bugwood.org.

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1. Krupinsky, J.M.; Johnson, D.W. 1986. Septoria leaf spots of cottonwood, caragana, and maple. In: Riffle, J.W.; Peterson, G.W., tech. coords. Diseases of trees in the Great Plains. Gen. Tech. Rep. RM-129. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 149 p.
2. Sinclair, W.A.; Lyon, H.H.; Johnson, W.T. 1987. Diseases of trees and shrubs. Ithaca, NY: Cornell University Press. 574 p.

